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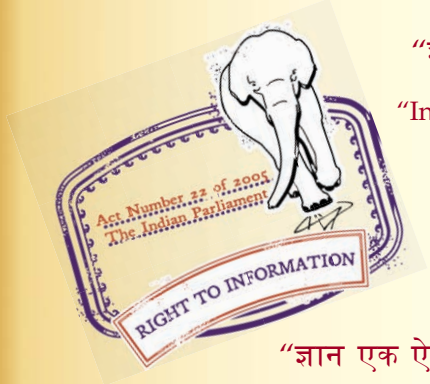
IS 9170-1 (2005): Endless Haulage Clips, Part I: General Requirements [MED 8: Mining Techniques and Equipment]



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Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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भारतीय मानक

सिरारहित ढुलाई रोप क्लिप — विशिष्टि

भाग 1 सामान्य अपेक्षाएँ

(पहला पुनरीक्षण)

Indian Standard

ENDLESS HAULAGE ROPE CLIPS — SPECIFICATION

PART 1 GENERAL REQUIREMENTS

(First Revision)

ICS 73.100.30

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

August 2005

Price Group 2

FOREWORD

This Indian Standard (Part 1) (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Mining Techniques and Equipment Sectional Committee had been approved by the Mechanical Engineering Division Council.

Haulage clips are used for connecting a set of mine tubs to the haulage rope in a mine haulage system. Different types of clips are used with over-rope or under-rope endless haulage system.

This standard was published in 1979. While preparing this standard, it was felt necessary to issue standards covering the dimensional details of components of various types of haulage clips. Accordingly this standard is being published in three parts. The result of experience gained in implementation of this standard has also been incorporated in this revision. Other parts in the series are:

Part 2 Screw clip, cam clip, small man clip and wedge clip

Part 3 Lashing chain

The composition of the Committee responsible for the formulation of this standard is given in Annex B.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed and calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

ENDLESS HAULAGE ROPE CLIPS — SPECIFICATION

PART 1 GENERAL REQUIREMENTS

(First Revision)

1 SCOPE

This standard (Part 1) covers the general requirements for endless haulage clips including lashing chain for connecting mine haulage rope with tubs or set of tubs for under-rope endless haulage as well as over-rope endless haulage.

2 REFERENCES

The following standards contain provision, which through reference in this text constitute provision of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of appliying the most recent editions of the standards indicated below:

IS No.	*Title*
9170	Endless haulage rope clips — Specification:
(Part 2) : 2005	Screw clips, cam clip, small man clip and wedge clip
(Part 3) : 2005	Lashing chain

3 TYPES AND SAFE WORKING LOADS OF CLIPS/ LASHING CHAIN

Sl No.	*Type*	*Safe Working Load* tonnes
i)	Screw clip	0.70
ii)	Cam clip	0.80
iii)	Small man clip	0.60
iv)	Wedge clip	0.25
v)	Lashing chain	1.5

4 MATERIAL

Materials for various parts of clips and lashing chain are specified in IS 9170 (Part 2) and IS 9170 (Part 3) respectively.

5 GENERAL REQUIREMENTS

5.1 Each component of clip/lashing chain shall have static factor of safety of not less than 7 in relation to maximum static load attached to the rope through a clip.

5.2 Forged components shall avoid sudden changes of section, thickness and/or shape.

5.2.1 The clip shall be of sturdy design and shall be able to be securely attached to the rope so as to prevent accidental disconnection.

5.3 Forging shall be such that the fibrous structure of the material is not transverse to the line of pull in clips.

5.4 The bodies of the clip shall be forged or cast without any weld. Pin or bolt holes in the bodies shall be drilled as far as possible. In all cases the holes shall be drilled or bored in axial alignment at one setting central to the outside diameter of the eye.

6 HEAT TREATMENT

After all forging and welding operations each clip shall be either normalized; or normalized and tempered; or hardened and tempered; as agreed between the purchaser and the manufacturer, at the following temperatures:

Heat Treatment Process	*Temperature* °C	*Quenching Medium*
Normalizing	870 to 910	Water or oil
Hafdening	870 to 910	Water or oil
Tempering	550 to 660	Water or oil

7 HARDNESS

The hardness of the jaw shall be 250 HV, *Max*.

8 TESTS

8.1 Ten percent of the clips/lashing chains shall be tested for slip to a load not less than 3 times the safe working load for which the clip/lashing chain is designed and then non-destructive testing by magnetic particle flaw detector shall be done for evaluating cracks/major flaws.

8.2 At least 2 percent of the clips/lashing chains shall be subjected to chemical analysis and hardness test.

9 MARKING

9.1 Each clip shall be legibly marked on a non-vital part as follows:

a) Normalized or normalized and tempered, coupling with the mark N or M respectively, and

b) Hardened and tempered clip with the mark OM.

9.2 The stamps used for marking shall be of 5 mm size. Care shall be taken that the indentation is neither too sharp nor excessive in depth.

9.3 Each clip shall be legibly marked on a non-vital part with the following information:

a) Manufacturer's identification mark,
b) Safe working load,
c) Type of heat treatment given (*see* **9.1**), and
d) Identification mark bearing the manufacturer's certificates of test and examination.

9.3.1 *BIS Certification Marking*

Each clip may also be marked with the Standard Mark.

9.3.1.1 The use of the Standard Mark is governed by the provisions of *Bureau of Indian Standards Act,* 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

10 CERTIFICATE OF TEST AND EXAMINATION

10.1 The supplier shall provide certificate of test and examination in the form shown in Annex A with every consignment of clips.

10.2 Certificate giving the results of any additional tests, which have been carried out, shall also be provided by the supplier.

11 PARTICULARS TO BE SUPPLIED AT THE TIME OF ENQUIRY OR ORDER

Following particulars shall be supplied at the time of enquiry or order:

a) Type of the clip;
b) Diameter of rope;
c) Specification of material;
d) Heat treatment desired; and
e) Further tests or chemical analysis, if required.

ANNEX A
(*Clause* 10.1)

PROFORMA FOR THE CERTIFICATE OF TEST AND EXAMINATION OF CLIP

Identification Mark	*Description*	*Quantity Tested*	*Slip Test*	*Hardness*	*Chemical Composition*

Particulars of heat treatment to which the clip has been subjected:

.....

We hereby certify that the clip described above complies in all respects with IS 9170 (Part 1) and it was subjected to the appropriate slip load test and subsequently examined by a competent person.

Signature.....

Date .....

ANNEX B
(*Foreword*)

COMMITTEE COMPOSITION

Mining Techniques and Equipment Sectional Committee, ME 08

Organization	*Representative(s)*
Directorate General of Mines Safety, Dhanbad	SHRI Y. K. SHARMA (***Chairman***) SHRI ANUP VISWAS (*Alternate*)
Bharat Coking Coal Ltd, Dhanbad	SHRI RAMJI SAHAY
Bharat Earth Movers Ltd, Bangalore	SHRI V. PALANISWAMY SHRI T. R. LOGANATHAN (*Alternate*)
Central Coalfields Ltd, Ranchi	CHIEF GENERAL MANAGER (OPERATIONS) CHIEF GENERAL MANAGER (EQUIPMENTS) (*Alternate*)
Central Mine Planning & Design Institute Ltd, Ranchi	SHRI S. K. CHATTERJI SHRI KISHORE KUMAR (*Alternate*)
Central Mining Research Institute, Dhanbad	SHRI V. N. PATHAK
Eimco Elecon (India) Ltd, Vallabh Vidyanagar	SHRI A. M. DESHPANDE SHRI RAVINDRA LUTHRA (*Alternate*)
Gujarat Mineral Development Corporation, Ahmedabad	SHRI S. N. MATHUR
Hindalco Industries Ltd, District Sonbhadra	SHRI K. K. PATODIA SHRI ASHOK BAMJI (*Alternate*)
Hindustan Copper Ltd, Kolkata	SHRI KAMALESH SINGH SHRI O. P. BHARDWAJ (*Alternate*)
Hindustan Zinc Ltd, Udaipur	SHRI K. C. JAIN
Indian Bureau of Mines, Goa	SHRI RANJAN SAHAI
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The Hutti Gold Mines, Hutti, Karnataka	DR M. L. PATIL
The Indian Chain Link Manufacturers Company, Mumbai	SHRI P. K. NEVATIA

Organization	*Representative(s)*
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TRF Ltd, Jamshedpur	SHRI S. S. MUKHOPADHAY SHRI N. C. GOSWAMI (*Alternate*)
Western Coalfields Ltd, Nagpur	SHRI A. K. HALDAR SHRI P. S. RAJU (*Alternate*)
BIS Directorate General	SHRI A. S. BASU, Scientist 'F' and Head (MED) [Representing Director General (*Ex-officio Member*)]

Member Secretary
SHRI P. VENKATESWARA RAO
Scientist E (MED), BIS

Bureau of Indian Standards

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Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

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